**SBI3U - Sex-Linked Inheritance**

* How many pairs of chromosomes do humans have?

**Autosomal Inheritance:**

* Males and females affected \_\_\_\_\_\_\_\_\_\_\_ since there’s no difference between autosomes of males and females

**Sex-Linked Inheritance:**

RECALL:

* Females:
* Males:



**X and Y Chromosomes**

**X-Linked Disorders:**

* A recessive allele for a disorder located on the X chromosome is more likely to express itself in males than females 🡪 WHY??

MALES:

FEMALES:

**Y-Linked Disorders:**

* Fewer Y-linked disorders than X-linked because Y chromosome is small and does not carry as much genetic information as X chromosome

**Recessive Lethal Disorders:** A trait that, when both recessive alleles are present (homozygous recessive), result in death or severe malformation of the offspring E.g. Sickle Cell Anemia & Cystic Fibrosis

**Sample Sex-Linked Problems**

1. Hemophilia is an X-linked recessive trait. A hemophiliac man marries a woman without hemophilia (homozygous). Show the phenotype ratio of their children.

1. In fruit flies (drosophila), eye colour is a sex linked trait. Note: red eyes are dominant to white and are located on the X-chromosome only. The Y-chromosome does not contain an allele for this trait.

 a) What are the genotypes and phenotypes for the F1 generation if a pure-breeding, red-eyed female mates with a white-eyed male?

 b) The F2 generation if a male and a female from the F1 generation mate?